CLAIMS

1. (currently amended) A ceramic filter for molten metal filtration comprising a ceramic powder and fibers bonded by a network of graphitizable carbon fired in a non-oxidizing atmosphere at a temperature up to 1000°C, wherein the graphitizable carbon is produced from graphitizable carbon precursor present in a positive amount up to 15% by weight.

2-3. (canceled)

4. (currently amended) A filter for molten metal filtration comprising fibers bonded by a network of graphitizable carbon fired in a non-oxidizing atmosphere at a temperature up to 1000°C, wherein the graphitizable carbon is produced from graphitizable carbon precursor present in a positive amount up to 15% by weight.

5-21. (canceled)

22. (previously presented) The filter of claim 1, wherein the ceramic powder is selected from a group consisting of zirconia, silica, alumina, brown fused alumina, magnesia, clay, talcum, mica, silicon carbide, silicon-nitride, graphite and mixtures thereof.

23. (currently amended) The filter of claim 1, wherein the filter comprises graphitizable carbon produced from 5-15 wt% graphitizable carbon precursor, and wherein the graphitizable carbon is fired in a non-oxidizing atmosphere at a temperature up to 1000°C.

24. (previously presented) The filter of claim 1, wherein the fibers are selected from a group consisting of ceramic fibers, glass fibers, organic fibers, carbon fibers, metal fibers and mixtures thereof.

25. (previously presented) The filter of claim 1, wherein the filter comprises 1-10 wt% fibers.

26. (previously presented) The filter of claim 4, wherein the fibers are selected from a group consisting of ceramic fibers, glass fibers, organic fibers, carbon fibers, metal fibers and mixtures thereof.

27. (currently amended) The filter of claim 26, wherein the ceramic fibers are selected from a group consisting of alumina fibers, silica fibers, aluminosilicate fibers and mixtures thereof.

28. (previously presented) The filter of claim 26, wherein the organic fibers are selected from a group consisting of polyester fibers, polyacrylnitrile fibers, polyethylene fibers, polyamide fibers, viscose fibers, aramid fibers and mixtures thereof.

29. (previously presented) The filter of claim 4, wherein the filter comprises 1-10 wt% fibers.

30. (previously presented) The filter of claim 4, wherein the fibers have a length from 0.1-5 mm.

31. (withdrawn) A method to produce filters for molten metal filtration comprising fibers and a bonded network of graphitized carbon, comprising:
    a) impregnating a foam comprising a thermoplastic material with a slurry comprising fibers and a graphitizable carbon-bonding precursor;
    b) drying the impregnated foam;
    c) firing the impregnated foam in a non-oxidizing atmosphere at a temperature from 500-1000°C, whereby the carbon-bonding precursor is converted at least partially to a bonded network of graphitized carbon.
32. (withdrawn) The method of claim 31, wherein the foam is impregnated by a plurality of coatings of the slurry.
33. (withdrawn) The method of claim 31, wherein the fibers include organic fiber and the organic fiber is pyrolyzed during firing.
34. (withdrawn) The method of claim 31, wherein firing is performed at a temperature from 600-700°C.
35. (withdrawn) The method of claim 31, wherein the non-oxidizing atmosphere comprises a reducing atmosphere.
36. (withdrawn) The method of claim 31, wherein the slurry includes a ceramic powder.
37. (withdrawn) The method of claim 31, wherein the foam comprises polyurethane.
38. (withdrawn) The method of claim 31, wherein the slurry includes fibers, carbon-bonding precursor, water, organic binder, and rheology additives.
39. (withdrawn) A method to produce filters for molten metal filtration comprising fibers and a bonded network of graphitized carbon, comprising:
    a) pressing a semi-damp mixture comprising fibers and a graphitizable carbon-bonding precursor to obtain a perforated article;
    b) firing the perforated article in a non-oxidizing atmosphere at a temperature from 500-1000°C, whereby the carbon-bonding precursor is converted at least partially to a bonded network of graphitized carbon.
40. (withdrawn) The method of claim 39, wherein the slurry includes ceramic powder.
41. (withdrawn) The method of claim 39, wherein the graphitizable carbon-bonded precursor comprises high melting pitch.
42. (withdrawn) The method of claim 39, wherein the semi-damp mixture comprises:

a) 0.1-20 parts fibers;
b) 2-15 parts graphitizable carbon-bonding precursor;
c) up to 95 parts ceramic powder;
d) up to 80 parts anti-oxidation material;
e) up to 90 parts graphite;
f) up to 10 parts organic binder; and
g) up to 4 parts dispersion agent.

43. (withdrawn) The method of claim 42, wherein the anti-oxidation material is selected from a group consisting of powders of steel, iron, bronze, silicon, magnesium, aluminum, boron, zirconium boride, calcium boride, titanium boride and mixtures thereof.
44. (withdrawn) The method of claim 42, wherein the anti-oxidation material comprises glass frit with 20-30 wt% boric oxide.
45. (withdrawn) The method of claim 42, wherein the organic binder is selected from a group consisting of PVA, starch, gums, sugar and mixtures thereof.
46. (withdrawn) The method of claim 42, wherein the dispersion agent comprises ligninsulphonate.
47. (withdrawn) The method of claim 42, wherein the semi-damp mixture includes up to 2 parts plasticizer.
48. (withdrawn) The method of claim 42, wherein the semi-damp mixture includes up to 1 part anti-foaming agent.
49. (withdrawn) The method of claim 42, wherein the non-oxidizing atmosphere comprises a reducing atmosphere.
50. (withdrawn) The method of claim 39, wherein firing is performed at a temperature from 600-700°C.